The National Center for Academic Transformation

Experts in improving learning and reducing cost in higher education.

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Written monthly by Bob Heterick and Carol Twigg, *The Learning MarketSpace* provides leading-edge assessment of and future-oriented thinking about issues and developments concerning the nexus of higher education and information technology.

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THERE'S MORE THAN ONE WAY TO SKIN A CAT

At EDUCAUSE 2002, my colleague Carolyn Jarmon and I offered a pre-conference workshop on how to improve quality and reduce costs by redesigning large-enrollment courses. The idea was to replicate as closely as possible the workshops we held as part of the application process in the Pew Grant Program in Course Redesign. Our goal was for participants to learn the basic planning steps involved in redesign as well as how to adapt the model to the needs of their particular institutions.

As we thought about how to structure the day, we were concerned about the difference between the workshops we'd held as part of the grant program where participants were working on redesign plans for particular courses at their institutions and the EDUCAUSE workshop where participants had signed up to learn about the redesign methodology in general. We wanted to keep the presentation part of the workshop to a minimum and to make the workshop as experiential as possible. After all, we advocate active learning, not as an abstract principle, but because we know it works. Because the notion of improving quality while reducing costs is so counter-intuitive to the higher education community, we also felt the participants would need to have a concrete experience grappling with real academic problems as they worked their way through the planning methodology.

So what did we do? We didn't try to reinvent the wheel. We organized the day around two case studies and divided the large group into a number of small groups to work on them. We introduced the small group activity by providing a conceptual framework about redesign; we asked the groups to answer a set of specific questions about the cases; and we followed up the group activity by asking each group to share their ideas and responses to the questions. All in all, we think it worked pretty well. And, in the process, we discovered a different way to think about course redesign.

The two cases we chose were representative of the two predominant forms of instruction on campus today. One was a large-lecture course; the other was a multiple-section course. In fact, the two cases were drawn from two projects being conducted as part of the Program in Course Redesign, but we did not initially identify either institution.

(We had a particular reason not to name the schools, which had nothing to do with protecting their identities. It has always amazed us that so many members of our community who are professional abstract thinkers seem to be incapable of reasoning by analogy. How many times have you been at a conference presentation when a speaker offers an example that happens to be from an R1 institution? Practically every member of the audience who is from a small private liberal arts college, a community college or a regional comprehensive will conclude that the example has no applicability to his or her particular institution. We believe that our redesign principles have widespread applicability to many different types of institutions, but we didn't want to begin the workshop by fighting that battle.)

Each case described the academic and resource problems facing the course in its traditional format, its structure, the kinds and number of personnel involved, how each person involved spends his or her time, and the academic goals for the redesign. Here is an abbreviated summary of each case.

State U wants to redesign its art appreciation course, a required general education course for all students entering the university at the freshman or sophomore level. The course is taught in face-to-face sections of about 30 students each by a combination of full-time and adjunct faculty members. Significant enrollment increases have required growing numbers of small sections at a time when resources are limited. The course suffers from several problems typical of multiple-section courses. Large numbers of faculty design individual sections resulting in duplication of effort. Faculty effort in course delivery is inefficient as each person tries to cover all content areas. The results are "course drift" and inconsistent learning experiences for students as each faculty member designs the course to suit individual interests. In addition, it is difficult to recruit qualified adjuncts. Many have a limited background without the depth to teach the wide range of the arts required in the course. Finally, students with highly variable learning styles and study skills are served poorly by a single "fixed-menu" course delivery strategy.

A large research university wants to redesign its introductory statistics course that enrolls 2,200 students annually. Currently, students attend three lectures and two recitation meetings per week. Four professors each teach one large section, hold office hours, create examinations and supervise GTAs. The current structure is

labor-intensive, requiring twelve GTAs each semester to lead recitations and grade exercises and examinations. It is difficult for the department to identify, much less allot, this many qualified assistants. In addition, the lecture format does not encourage active student participation and cannot address the broad range of student learning styles and quantitative skills. Finally, the course does not provide tutoring assistance for students. Students need to be able to engage in discussion, collaborate with fellow students, and participate in one-to-one interchange with trained instructors.

We first asked the small groups to analyze the traditional course. We asked them to think about things like, how well does the current course structure enable the desired learning outcomes? What particular problems need to be addressed in the redesign? Is there any unnecessary duplication of effort among the people who teach the course? What aspects of the course are "fixed," and what aspects can be changed? The groups did a very good job of carefully analyzing the many elements that make up a single course, an important first step in the redesign process, and they were anxious to move on to the actual redesign.

Before turning the participants (and their creativity) loose, we asked them to think about the following questions: What kinds of learning materials and learning activities that actively involve students can be used in the redesign? What kinds of capital-for-labor substitutions are possible? Who involved in teaching the traditional course needs to be part of the redesign? What kinds of other personnel might be part of the redesign? What kinds of activities can be moved online? What kinds cannot? How much face-to-face interaction is needed? Why? How will the redesigned course structure enable the required (or desired) learning outcomes for students? Are there alternative structures for redesign that might be considered rather than a single solution?

Carolyn and I had no clue what the groups would come up with, especially since they were simulating a process that took the actual campus teams months to accomplish. We also thought that different groups would arrive at different solutions. But here's what actually happened.

Each of the three groups working on the statistics case moved the course fully online; each of the three groups working on the fine arts case created a hybrid solution that blended face-to-face, classroom activities with out-of-class, online activities. In each case, the primary reason for structuring the course had to do with the nature of the subject matter. Statistics, a quantitative subject, was more suited to a fully online format, the groups thought. Fine arts, a softer subject, required a substantial component of face-to-face discussion. Perhaps you would have come to the same conclusion.

What's fascinating about the redesigns developed by the workshop participants is that they are the exact opposite of what the case-study institutions actually did. The statistics course, redesigned by Penn State University, is based on a hybrid model; the fine arts course, redesigned by Florida Gulf Coast University (FGCU), is fully online. Both institutions had good reasons behind their design choices.

Penn State replaced a number of lectures with computer-studio labs, conducted by a professor and/or a GTA and an undergraduate student intern, which give students the opportunity to work in groups to apply what they learn from resource materials. Students work individually and collaboratively on prepared activities. Approximately 30% of the lab time is used for elaboration of concepts, 60% for computer-related work and class discussion of the results, and 10% for online quizzes on concepts related to the activities.

In their original design, FGCU intended to develop a buffet approach to learning, which means they wanted to offer students a variety of ways to achieve the course's desired learning outcomes. While the textbook and online materials were central components, the team also included lectures and labs for those who wanted hands-on work and face-to-face interaction. What FGCU has found is that no one attended the lectures or labs (which were also taped and made available in the library which no one checked out). More importantly, they discovered that the lectures and labs were not needed for the level and type of learning they expected. Because of this, FGCU eliminated the lectures and labs from the redesigned course altogether.

Could the statistics course be offered in a fully online format? Of course. Could the fine arts course be offered in a hybrid format? Again, the answer is, of course. The point is that, in the abstract, there is no one "right" way to redesign a course. The choices made by our workshop groups are ostensibly as valid as those made by Penn State and FGCU.

On what basis, then, should one make choices when redesigning a course? Here is where the projects involved in the Program in Course Redesign have a distinct advantage over our simulators. As in the FGCU example, the 30 redesign projects are individually and collectively sorting out what redesign techniques are effective versus those that are not based on measuring how each impacts student learning, rather than on what seems to be the right reason in the abstract.

There may be more than one way to skin a cat, but the only way to know the best way is to measure which one is most effective.

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The Digital Divide has always been a hot topic in educational circles, particularly among those who are relatively uninformed about technology. Always the contrarian, Bob wrote the following column in the October 1999 issue of The Learning MarketSpace. Three years later, technology prices continue to drop while tuition prices continue to rise. It's déjà vu all over again.

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THE DIGITAL DIVIDE

Several weeks ago I spent a couple of hours with a reporter for one of our prestigious national magazines who was doing a story on the "Digital Divide"—a very catchy title. "What," she asked, "is your view of the digital divide?" I'm sure my response was far from what she expected. I asked her to explain the digital divide to me and she replied something like, "you know—the haves and have nots."

Now this is not an unimportant question for those who are contemplating moving some forms of instruction from the physical classroom to the ether of distance learning. If students don't have the technology to take advantage of technology mediated learning environments, we won't have any students. If some do and some don't, we are immediately limited in those we can reach. So what about this digital divide?

Certainly slaves in Egypt in 1000 BC had little expectation that they, their children, or their children's children would be anything but slaves. Similarly, a serf in 13th century France had no expectation that he would ever be a landowner, much less lord of the manor. A social divide pertained in each instance that was essentially impregnable. The "cost" to go from slave or serf to land owner was simply beyond reach.

The College Board recently published some statistics that might give us pause. Three quarters of households with incomes greater than $75,000 have computers. One third of households with incomes between $25,000 and $35,000 have computers. Only one sixth of households with incomes less than $15,000 have computers. Interestingly enough, (admitting that I don't have the exact figures), better than 95 percent of those households with incomes less than $15,000 have television sets.

The "cost" to go from a television "have not" to a television "have" is in the range of $200 to $500. The cost to go from a computer "have not" to a computer "have" is about $600. To be sure, Internet connectivity can raise that price somewhat—but not appreciably if we are willing to settle for 56 kps dial-up. It is also the case that over 95 percent of the households in the United States have a telephone. Unlike the cases of the Egyptian slave or the French serf, there is a very real prospect that one can go from a computer "have not" to a computer "have." In fact, if consumers valued computers as much as televisions, we wouldn't have a digital divide to talk about.

So how should the "digital divide" figure in our planning as we think about moving from the marketplace to the marketspace? Probably not at all. The $600 cost to become a "have" is about what one might expect to save in first semester tuition costs—not to mention room and board. We might better be talking about the "Digital Dividend."

The digital divide we should be worrying about is the unhappily slow roll-out and high cost of high speed digital connectivity. To produce really compelling learning applications on line, we will most often require megabit access. At the current roll-out rate of our phone companies' digital subscriber line technology and the cable companies' symmetrical broadband services, we will be severely limited in what we can design in the way of new learning environments for quite some time to come. Maybe we should get to work on this digital divide.

--RCH

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UPCOMING LEADERSHIP FORUM EVENTS

STATE-OF-THE-ART LEARNING ENVIRONMENTS: LESSONS FROM THE PEW GRANT PROGRAM IN COURSE REDESIGN
February 24, 2003, Dallas, Texas

Co-sponsored by the Executive Forum in Information Technology at Virginia Tech

This seminar will present results from the third of three rounds of the Pew Grant Program in Course Redesign. Learn from faculty project leaders how to increase quality and reduce costs using information technology. Faculty from four institutions will talk about their models of course redesign, including their decisions regarding student learning objectives, course content, learning resources, course staffing and task analysis, and student and project evaluation. These models provide varied approaches that demonstrate multiple routes to success, tailored to the needs and context of each institution.

These seminars provide a unique opportunity for you to:

- Learn firsthand how to increase quality and reduce costs using information technology from successful faculty project leaders.
- Find out how to design learning environments for the future by tapping the expertise of those who have done it.
- Talk with experienced faculty from multiple institutions about how and why they made their redesign decisions.
- Move beyond "today" and learn where on-line learning is going . . . find a model that will work for your institution.

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